



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/817,398

04/01/2004

Mikhail Korolik

LAM2P467

2902

25920 7590 12/30/2008
MARTINE PENILLA & GENCARELLA, LLP
710 LAKEWAY DRIVE
SUITE 200
SUNNYVALE, CA 94085

EXAMINER

HECKERT, JASON MARK

ART UNIT

PAPER NUMBER

1792

MAIL DATE

DELIVERY MODE

12/30/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/817,398	Applicant(s) KOROLIK ET AL.	
	Examiner JASON HECKERT	Art Unit 1792	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 October 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 13, 15-26, 33 and 35 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 13, 15-26, 33, 35 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Due to the applicant's amendments to the claims, the previous rejections are rendered moot.
2. Applicant is correct that item 53 is an O-ring. Item 52, however is the channel that delivers a tensio-active substance.
3. Mertens does teach delivering a gas, which can be an environmental control gas. Thus, no further amendments have been made to the claims that differentiate from Mertens.
4. Although the applicant points out that Mertens is incapable of delivering a meniscus to two sides of a substrate, the applicant has failed to present the structures that allow the instant invention to operate in that manner. All that is claimed is a head with a plurality of discrete conduits, which Mertens has clearly shown.
5. Finally, the applicant has presented no structure regarding the chamber. A chamber is broadly interpreted as some sort of three dimensional enclosure. A clean room, which the applicant admits would be used with Mertens, is a three dimensional enclosure, and thus reads on a chamber. If the chamber of the instant invention is different, the structures that differentiate it from the prior art must be positively recited in the claims.
6. Applicant is welcome to contact the examiner for advice on future amendments in order to hasten prosecution.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claim 13, 17-26 rejected under 35 U.S.C. 103(a) as being unpatentable over Mertens et al. in view of Mitsumori et al. Mertens discloses a substrate treatment apparatus for delivering and removing fluids in close proximity to a substrate. The head unit comprises a plurality of conduits for delivering and removing fluid (channels 50 and 51). A chamber housing such head is considered to be obvious, if not inherent, as it is very common to operate substrate treatment devices in sealed or controlled environments, whether it be a clean room or containment device. Channel 52 injects a control gas to alter the environment in and around channels 50 and 51. The leading edge of the apparatus encounters the unprocessed regions before the internal channels 50 and 51. The device of Mertens is capable of providing various environmental control gases, and little patentable weight is given to claims 21-26. Mertens discloses that the apparatus can be used to treat both the top and bottom surface of a substrate. Mertens even shows another embodiment where two heads are used (figure 1b) to treat both surfaces simultaneously. Examiner believes that one skilled in the art is capable of duplicating the device of figure 5b and treating top and bottoms surfaces of a substrate simultaneously, as Mertens shows in figure 1b, especially considering the device of 5b is capable of treating both a top and bottom surface. Furthermore, duplication of parts

Art Unit: 1792

was held to have been obvious. *St. Regis Paper Co. v. Beemis Co. Inc.* 193 USPQ 8, 11 (1977); *In re Harza* 124 USPQ 378 (CCPA 1960). The device of Mertens teaches a configuration where the head contacts the substrate. Mitsumori teaches using a head in a non-contact relationship with the substrate (figure 4). Thus, a configuration was known at the time of the invention that allows a head to define a meniscus on a substrate without being in a contact relationship. It would have been obvious to modify Mertens and create a meniscus in a non-contact relationship, as shown by Mitsumori, in order to treat the surface of the substrate.

9. Claims 15, 16, 33, and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mertens in view of Mitsumori in view of Schild et al. and further in view of Bok or Morinishi et al. As opposed to viewing channels 52 and 54 as the environmental control gas input, it can also be construed as an addition channel for delivering fluid, and an additional channel for removing fluid. Thus, Mertens discloses a head with a plurality of conduits for delivering fluid (channels 50 and 52) and a plurality of conduits for removing fluid (channels 51 and 54). Bubbling IPA vapor into a substrate treatment apparatus is known in the art in order to provide a vapor rich atmosphere. Schild discloses injecting IPA vapor via a bubbler in order to create a homogenous vapor atmosphere so that conditions for each wafer are identical (col 5 lines 60 - col 6 line 3). As stated previously, examiner believes that one skilled in the art is capable of duplicating the device of Mertens and treating top and bottoms surfaces of a substrate simultaneously. An arm or support mechanism is considered to be obvious if not inherent. Process control is common in most substrate treatment mechanisms. In a

Art Unit: 1792

previous rejection, Bok was disclosed as obviating process control devices (col. 6 lines 33-39). Sensors and control input are considered to be common process control devices. Furthermore, Bok's device includes a console that controls a variety of parameters, such a temperature and liquid circulation. Additionally, Morinishi discloses a flow control unit 21 comprising various sensors for detecting fluid flow and controlling fluid flow in a treatment apparatus. Thus, the inclusion of fluid sensors and fluid control are considered to be obvious modifications that are not patentably distinct features. It would have been obvious at the time of the invention to modify Mertens in view of Mitsumori, as stated above, and include two nozzle heads for treating both surfaces of a substrate and additionally provide a vapor atmosphere, as disclosed by Schild, for identical wafer treatment.

Conclusion

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

Art Unit: 1792

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JASON HECKERT whose telephone number is (571)272-2702. The examiner can normally be reached on Mon. to Friday, 9:00 - 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Barr can be reached on (571)272-1414. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Michael Barr/
Supervisory Patent Examiner, Art
Unit 1792

JMH